

AMENDMENTS TO THE CLAIMS

1-12. (Canceled)

13. (Currently amended) ~~The apparatus of claim 12~~ A packet transfer apparatus for a network system said apparatus comprising:

a packet receiver that accepts an input of packets from a first network segment;

a packet classifier that classifies packets based on their respective process flows;

a packet discarder to discard packets;

a packet sender that sends packets to a second network segment; and

a feedback mechanism between the packet discarder and the packet classifier wherein the packet classifier can be provided information regarding discarded packets,

wherein the apparatus sends an acknowledgement packet, said acknowledgement being sent from a destination of the discarded packet to a source of the discarded packet, said acknowledgement containing a sequence number of the discarded packet

wherein the apparatus is capable of measuring an elapsed time between the discarding of the packet and a time immediately prior to receipt of the acknowledgment packet.

14. (Original) The apparatus of claim 13 wherein the apparatus is capable of setting a threshold time that is compared against the elapsed time.

15. (Original) The apparatus of claim 14 where the acknowledgment packet is not transferred when the time threshold is larger than the elapsed time.

16. (Original) The apparatus of claim 14 where the acknowledgment packet is transferred when the time threshold is equal to or smaller than the elapsed time.

17-19. (Canceled)

20. (Currently amended) ~~The apparatus of claim 19~~ A packet transfer apparatus for a network system said apparatus comprising:

a packet receiver that accepts an input of packets from a first network segment;

a packet classifier that classifies packets based on their respective process flows;

a packet discarder to discard packets;

a packet sender that sends packets to a second network segment; and

a feedback mechanism between the packet discarder and the packet classifier wherein the packet classifier can be provided information regarding discarded packets,

wherein the apparatus is capable of ignoring an acknowledgment packet transmitted from the destination to the source requesting the retransmit of the discarded packet and measuring an elapsed time between the discarding of the packet and a time immediately prior to receipt of the acknowledgment packet from the destination.

21. (Original) The apparatus of claim 20 wherein the apparatus is capable of setting a time threshold that is compared against the elapsed time.

22. (Original) The apparatus of claim 21 wherein a second packet is not transferred when the time threshold is larger than the elapsed time.

23. (Original) The apparatus of claim 21 wherein a second packet is transferred when the time threshold is equal to or smaller than the elapsed time.

24-47. (Canceled)

48. (Currently amended) ~~The A network system of claim 47~~
comprising:

a plurality of terminal nodes;
at least one packet transfer unit effectively
connected between at least two of said terminal nodes,

said at least one transfer unit further comprising a packet classifier that classifies packets into their respective process flows;

a random early discarder (RED) of packets; and

a feedback mechanism between the RED and the packet classifier wherein the packet classifier can be provided information regarding discarded packets,

wherein the system sends an acknowledgement packet, said acknowledgement packet being sent from a destination of the discarded packet to a source of the discarded packet, said acknowledgement containing a sequence number of the discarded packet, and

wherein the system is capable of measuring an elapsed time between the discarding of the packet and a time immediately prior to receipt of the acknowledgment packet.

49. (Original) The network system of claim 48 wherein the system is capable of setting a threshold time that is compared against the elapsed time.

50. (Original) The network system of claim 49 where the acknowledgment packet is not transferred when the threshold time is larger than the elapsed time.

51. (Original) The network system of claim 49 where the acknowledgment packet is transferred when the threshold time is equal to or smaller than the elapsed time.

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52-54. (Canceled)

55. (Currently amended) ~~The A network system of claim 54~~
comprising:

a plurality of terminal nodes;

at least one packet transfer unit effectively
connected between at least two of said terminal nodes,

said at least one transfer unit further comprising a
packet classifier that classifies packets into their
respective process flows;

a random early discarder (RED) of packets; and

a feedback mechanism between the RED and the packet
classifier wherein the packet classifier can be provided
information regarding discarded packets,

wherein the system is capable of ignoring an
acknowledgment packet transmitted from the destination to
the source requesting the retransmit of the discarded
packet and of measuring the elapsed time between the
discarding of the packet and a time immediately prior to
receipt of an acknowledgment packet from the destination.

56. (Original) The network system of claim 55 wherein
the system is capable of setting a time threshold that is
compared against the elapsed time.

57. (Original) The network system of claim 56 wherein a
second packet is not transferred when the time threshold

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is larger than the elapsed time.

58. (Original) The network system of claim 56 wherein a second packet is transferred when the time threshold is equal to or smaller than the elapsed time.

59-75. (Canceled)

76. (Currently amended) The A method of ~~claim 75~~, of transferring packets in a network further comprising:

accepting an input of packets from a first network segment;

classifying the packets based on their process flows;

providing a unique process flow identification (PFID) to packets belonging to a same process flow;

discarding at least a packet;

providing information to a packet classifier regarding the discarded packet;

stopping further transfer of packets having a same PFID as the discarded packet;

sending an acknowledgment packet to the source of the discarded packet, said acknowledgment containing a sequence number of the discarded packet; and

measuring an elapsed time between the discard of the packet and a time immediately prior to receipt of the acknowledgment packet.

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77. (Original) The method of claim 76 further comprising setting a threshold time that is compared against the elapsed time.

78. (Currently amended) The method of claim 77, further comprising not transferring the acknowledgment packet when the time threshold is larger ~~that~~ than the elapsed time and transferring when the time threshold is equal to or smaller than the elapsed time.

79-87. (Canceled)